INDICATOR LAMP HAVING A CONVERGING LENS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an indicator lamp comprising a light-emitting element such as a LED (light-emitting diode) and a chip and a converging lens disposed atop and covering the light-emitting element to converge light emitted from the element and, more particularly, to an indicator lamp, which permits a small-size light-emitting element to emit light appropriately in a broad light-emission area and with good efficiency.

2. Prior Art

The light emission zone of a light-emitting element such as a LED is intrinsically a pin-point. Such pin-point light emission lacks directivity and is scattered. It is thus impossible to form a substantially fixed planar light-emission area. Besides, the long distance visual recognition property is deteriorated. Accordingly, a converging lens is usually disposed, which covers the front of the light-emitting element and converges the emitted light.

An indicator lamp using such a lens is well-known in Japanese Utility Model Publication H6-28725. This converging lens has a light-emitting element mounting cavity formed at its bottom, and its peripheral surface which is parabolic in shape from the bottom toward the front, fully reflects light emitted from the light-emitting element such that the reflected light proceeds forwards.

The above light-emitting element lens indeed converges light emitted from the light-emitting element such that the converged light proceeds straight forward as emission light flux with suppression of the scattering of light, thus ensuring excellent long distance visual recognition property. However, since the scattering